

REMARKS

Claims 1, 3, 5-10 and 17-19 are pending in this application. By this Amendment, claim 1 is amended to overcome the rejection under 35 U.S.C. §112, first paragraph. Claims 18 and 19 are added.

No new matter has been added by this Preliminary Amendment. Support for new claim 18 can be found throughout the specification at, for example, paragraph 9. Support for new claim 10 can be found throughout the specification at, for example, paragraph 9 and Table 4.

I. Rejections Under 35 U.S.C. §112, first paragraph

Claims 1, 3, 5, 6, 8, 10 and 17 were rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. Particularly, the Patent Office alleged that there is no apparent support for the fatigue limit ratio recited in claim 1.

By this Preliminary Amendment, Applicants have removed the fatigue limit ratio limitation from Claim 1. Applicants submit that this rejection is now moot. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

A. New Claim 18

New claim 18 recites that a fatigue limit ratio determined by (fatigue strength)/(tensile strength) is 0.35 or more. The Patent Office has previously alleged that such a limitation is not supported by the written description. Applicants respectfully disagree.

"With respect to changing numerical range limitations, the analysis must take into account which ranges one skilled in the art would consider inherently supported by the discussion in the original disclosure." See MPEP §2163.06. Applicants submit that the entire disclosure, taken as a whole, clearly conveys to one of ordinary skill in the art that at the time the application was filed, Applicants had possession of an invention in which the fatigue limit ratio is as high as possible, e.g., up to the theoretical maximum of 1.0.

The specification describes that adding an additive element to the Fe-based sintered alloy in an effective amount produces a fatigue limit ratio of about 0.3, and may reach a maximum of about 0.45. See paragraph 12 of the specification. Similarly, when only the carbon (C) content is taken into account, the fatigue limit ratio exceeds 0.35, and reaches a maximum of at least about 0.45. See paragraph 13 of the specification.

However, the specification also describes that manufacturing methods and conditions can also affect the fatigue limit ratio. For example, by a nitriding process, the fatigue strength may be improved, and the fatigue limit ratio may be further increased. See paragraph 23 of the specification. The fatigue limit ratio may be further improved if the mechanical fuse is coated with a zinc chromate film.

Further, Table 1 demonstrates the effect of various treatments on the fatigue limit ratio. As shown in Table 1, steam treatment in a pot furnace may produce a fatigue limit ratio of 0.489. In other embodiments, various metal additives were tested for the fatigue limit ratio. See Table 2 of the specification. Table 3 demonstrates the effect of carbon content on the fatigue limit ratio, while Table 4 demonstrates the effect of soft nitriding on fatigue limit ratio, and Table 5 demonstrates the effect of zinc chromate coating on the fatigue limit ratio.

As each of the Tables 1-5 demonstrates the effect of one factor on the fatigue limit ratio, one of ordinary skill in the art would have understood that manipulation of the optional components and conditions may produce an even greater fatigue limit ratio. The possible maximum for the fatigue limit ratio is the theoretical maximum of one, when the roundness of the pores is equal to one.

Thus, Applicants submit that one of ordinary skill in the art would have easily understood from the overall description in the specification that various combinations of the components and conditions could produce a mechanical fuse having a fatigue limit ratio as great as one.

As such, Applicants submit that claim 18 is supported by the written description and is thus allowable.

B. New Claim 19

New claim 19 recites that a fatigue limit ratio determined by (fatigue strength)/(tensile strength) is between 0.35 and 0.53. Applicants submit that claim 19 is allowable.

As acknowledged by the Patent Office, the specification clearly discloses that the fatigue limit ratio is at least 0.35. Furthermore, as acknowledged by the Patent Office, the original specification also discloses that the fatigue limit ratio is at least as high as 0.53. See Table 4 of the specification.

As such, Applicants submit that new claim 19 is clearly supported by the original specification and is thus allowable.

II. Rejection of the Specification

In the Advisory Action, the Patent Office alleged that the correction of a typographical error in Table 3 is new matter, allegedly because it has not been demonstrated that the error in Table 3 would have been obvious to one of ordinary skill in the art at the time of filing. Applicants respectfully disagree.

Applicants submit that Table 3 is correctly disclosed in the priority document. Thus, it would have been obvious to one of ordinary skill in the art that there was a typographical error in the present specification as filed because the identical Table 3 in the priority document included different numbers in the last entry in the Table. The errors in the present specification's Table 3 thus clearly would have been obvious at the time of filing. Correction of these errors therefore cannot properly be found to constitute new matter.

Accordingly, Applicants submit that the correction of the typographical errors found in present Table 3 is not new matter. Instead, the amendment to Table 3 merely corrects a

clear typographical error that would have been obvious to one of ordinary skill in the art at the time of filing.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3, 5-10 and 17-19 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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